ICESat-2 PROJECT SCIENCE OFFICE REPORT
Monday, March 25, 2019 thru Sunday, March 31, 2019

RGTs spanned: 1323-41
Cycle 2 into Cycle 3

Items of Note:
All ATLAS housekeeping data is nominal; laser 2 is firing at energy level 4 and in science mode. ASAS delivered PGEs (ATL01, ATL02, and ATL03) to SIPS for acceptance testing that represent the first steps of testing and evaluation of data that will be released to the general public this spring (pending successful testing and evaluation). CAMS provided another new alignment correction table that was successfully uploaded to the satellite last Thursday, with an around-the-world scan occurring on Friday.

ELEMENT DETAILS BELOW

CAMS/POD/PPD:
CAMS: CAMS completed and continues to monitor Mission Weeks 28 and 29 respectively, while planning for Mission Week 30.

CAMS performed analysis to dismiss a potential laser conjunction event (with optical asset MOST) identified by the MOC during the planned orbit maintenance event. In addition, CAMS provided the proper science activity to be include in the split load SAT for Mission Week 29 in response to protecting the ISS from a potential lasing event on Friday, March 29.

Daily creation and delivery of daily products continue nominally.

POD: Regular POD operations continue. Final POD was completed for GPS week 2042. Intermediate POD was completed for GPS week 2044. All results look nominal.

POD processed data from DoY 075 round-the-world scan and found that pointing biases corrections uploaded to the spacecraft are not incorporated into ATL02 data. Therefore, calibration of rapid ANC05 from CAMS is still required.

Lastly, POD used data from the full mission to-date to solve for updated GPS antenna and SLR tracking point offset vectors.

PPD: NTR.

ISF:
All ATLAS housekeeping data is nominal
Laser 2 is firing at energy level 4 and in science mode
WTEM Peak to Edge Ratio: 1.163

Laser 2 Temperature Error: -0.24C
SADA in Sailboat Mode
Spacecraft orientation : - X

Mission Planning:
MW29 ATS is loaded to the spacecraft and currently operating, it includes additional RTW scans for POD/PPD
MW30 is being planned, it will include additional RTW scans for POD/PPD
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Activities during the past week
ATS activities:
All ATLAS and pointing activities were routine and completed as planned

2019/087:01:11:51 DMU13
2019/088:16:49:00 HIE with NORAD ID 25544 (ISS) mitigated with a -5 degree TOO

Real-time activities:
Daily / as-need: Executed standing CAR 91 to clear SBC errors. (Note 1)
Executed standing CAR 123 to clear a PCE1 EDAC error 2019/084

Mar 28: Spacecraft loaded updated ACS ATLAS2BDY parameters [appx 2019/087:17:44:01.0000]. (Note 2)

From SC Sustaining Engineering (S. Fernandes)

"The new scripts executed correctly and we verified the new values of the quaternion components. We also observed the RGT pointing error telemetry jump when the new values were uploaded, as expected. The return to MSN_RGT, after commanding UTL_EARTHPT for the upload itself, was also quick and nominal. ACS telemetry was nominal through the end of the pass, and subsequent passes".

Other Activities:
Investigating SBS errors (TRACKSTAT) that have occurred since last Friday - these are related to the number of centroids tracking targets.
Rx Algorithm parameter update testing at FLATLAS (Note 3)
Acceptance testing of PDB E.0.1 and subsequent release to operations.
Acceptance testing of the splitting of the PMT processing into product based components

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Next week's ATLAS activities:

Routine instrument and pointing calibration scheduled activities are in the MW30 ATS. MW30 includes FSW Receiver Algorithm parameter testing and extra RTW scans for the evaluation of the ATLAS bias values. MW29 and updated MW28 activities (Note 4) are attached..

Other Near-term activities:

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Notes/Issues:

1. The activity definition for the laser image dump was updated to include commands to clear the SBC errors however we will still get appx. daily random SBC errors to clear.
2. The ACS ATLAS2BDY parameters that were loaded last week improved pointing however offsets remain, updated parameters were loaded Thurs March 28th, the SC and PPD teams will continue to analyze the results.
3. The FSW Receiver Algorithm parameter update testing is to improve the amount of data collected over the oceans
4. Attaching an updated version of the MW28 activities that include times of the ATLAS2BDY parameter update 2019/081. The format of these files has been changed to make them easier to process via scripting.

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LTO Schedule:

All items remain on schedule except PDB E.0.1 installation in ops to be coordinated with the MOC.

SIPS:

- The SIPS is operating nominally:
  - Ingested and distributed Level 0 data to the ISF.
  - Generated Release 202 L1A and L1B products and distributed ATL02s to the ISF, POD, and SCF.
  - Distributed selected ATL01s to the ISF and SCF by special request.
  - Generating Release 206 (rapids) ATL03, ATL04, ATL09, and ATL06 using ANC03/04/05 files from the CAMS.
  - Distributing ATL03, ATL04, and ATL09 to NSIDC and the SCF.
  - Distributing ATL06 to the SCF.
- Produced and distributed Rel 206 Rapid ATL03s for March 28/29 to check out the new bias table uploaded to the spacecraft.
- Produced and distributed Rel 205 Final ATL03, ATL04, ATL09, and ATL06 for DOY 006-054.
- ASAS patch release 5.1 (L1A, L1B, and L2A_Alt PGEs) delivered to SIPS for SIPS Build 4.0.2.
  - SIPS Build 4.0.2 is currently being tested in the acceptance test system.
- Produced Rel F205 ATL03 products using 8 days of pre-yaw flip calibrated time bias corrected ANC05 files provided by the POD.

- The ATL03s were distributed to the POD.

ASAS:
ATL01 - delivered to SIPS for acceptance testing

ATL02 - delivered to SIPS for acceptance testing

ATL03 - delivered to SIPS for acceptance testing

ATL04/09 - Working on the cloud folding and blowing snow algorithms

ATL06 - Coded & tested estimated lat/lon; Removed code that corrected input heights for ocean tide

ATL07/ATL10 - Working on beam-specific gain, specular return and sea level pressure.

ATL08 - Working conversion of ATL08 to along-track regions

ATL12 - Added code to apply DAC and ocean_tide to input heights

ATL13 - Testing new shapefiles and product modifications.

ATL16/17 - Continued to address issues and provide sample data to the ATBD lead.

SCF:
The SCF is operating nominally. Data for releases 202, 205, and 206 are being ingested and distributed. An SDMS software update to help prevent occasional start-up issues was placed into operations, and some edits to its database were made to help improve performance. A bug in creating QA trending plots for ATL06 was revealed and is under investigation. Preparations for the next major data release (207), expected in early April, are ongoing. A file listing the current SCF data holdings is attached.

* Data Management -- A few minor edits to the code have been made and will be brought into operations when appropriate. The previous ATL06 trending bug fix was copied from the Python 2 code into the Python 3 code.

* Subsetter -- Bug fixes for indexing of ATL03 subsets have been tested and the results confirmed to work as expected. We plan to bring the code into operations next week, after the newest release 205 data has been handled.

* Visualizer -- Testing for the next release is continuing. Relevant documentation is being updated as needed. We are currently on track to make this release available before the Science Team meeting in mid-April.

ATL02:
Ground testing of some changes to on-board surface-finding settings has been completed satisfactorily. The changes are scheduled to be tested on-orbit for an 8-hour period during the week of April 1. These changes would increase the probability of downlinking the time interval that contains the surface under certain marginal conditions.

Testing continues on a new version of CAL 49 (receiver channel skews).

The team has decided that Flight Laser 1 will be resealed and backfilled without repairing the fractured slab in Amplifier 1, and long-term testing will resume.

ATL03:
ATL03 continues to collect text edits prior to a wide release at the end of April. Evaluation of existing r205 data revealed that the long period ocean tides have not been applied to ATL03 as an informational parameter. This will be rectified in a future release, and does not impact the planned release 001. All outstanding issues for release 001 have been closed.

ISF ACTIVITIES MISSION WEEK 029:

* Not in science mode
^ Could affect science data quality

^ 2019/087:01:11:51.0000 DMU13 for 72 minutes
^ 2019/087:03:20:00.0000 Stellar centroid window dump for 90 minutes (no stellar centroids)
2019/087:05:30:45.0000 OCEANscan (22 minutes)
^ 2019/087:07:07:44.0000 AMCS Cal for 2 minutes over open ocean
2019/087:08:31:33.0000 RTWscan (90 minutes)
* 2019/087:10:37:11.0000 TEP data collection for 3 minutes
* 2019/087:12:11:29.0000 TEP data collection for 3 minutes
* 2019/087:13:45:46.0000 TEP data collection for 3 minutes
* 2019/087:15:20:04.0000 TEP data collection for 3 minutes
* 2019/087:16:54:21.0000 TEP data collection for 3 minutes
2019/087:17:18:01.0000 OCEANscan (22 minutes)
^ 2019/087:17:44:01.0000 Spacecraft team updating ACS ATLAS2BDY parameters includes SC to Earth Point and back to Mission RGT point for 6 minutes
* 2019/087:18:28:39.0000 TEP data collection for 3 minutes
* 2019/087:20:02:56.0000 TEP data collection for 3 minutes
* 2019/087:21:37:13.0000 TEP data collection for 3 minutes
^ 2019/087:22:51:57.0000 AMCS Cal for 2 minutes over open ocean
^ 2019/088:03:41:11.0000 AMCS Cal for 2 minutes over open ocean
2019/088:05:05:06.0000 OCEANscan (22 minutes)
^ 2019/088:06:42:05.0000 AMCS Cal for 2 minutes over open ocean
2019/088:08:05:54.0000 RTWscan (90 minutes)
* 2019/088:11:45:50.0000 TEP data collection for 3 minutes

* 2019/088:13:20:07.0000 TEP data collection for 3 minutes
* 2019/088:14:54:25.0000 TEP data collection for 3 minutes
* 2019/088:16:28:42.0000 TEP data collection for 3 minutes
2019/088:16:49:00.0000 TOO for Laser Conjunction avoidance (LCA#2 with ISS) for 4 minutes
* 2019/088:18:02:59.0000 TEP data collection for 3 minutes
2019/088:18:26:39.0000 OCEANscan (22 minutes)
* 2019/088:19:37:17.0000 TEP data collection for 3 minutes
* 2019/088:21:11:34.0000 TEP data collection for 3 minutes
^ 2019/088:22:26:17.0000 AMCS Cal for 2 minutes over open ocean
* 2019/088:22:45:39.0000 TEP data collection for 3 minutes
^ 2019/089:04:42:09.0000 AMCS Cal for 2 minutes over open ocean
2019/089:06:13:44.0000 OCEANscan (22 minutes)
2019/089:07:40:15.0000 RTWscan (90 minutes)
* 2019/089:11:20:10.0000 TEP data collection for 3 minutes
* 2019/089:12:54:28.0000 TEP data collection for 3 minutes
* 2019/089:14:28:45.0000 TEP data collection for 3 minutes
* 2019/089:16:03:03.0000 TEP data collection for 3 minutes
* 2019/089:17:37:20.0000 TEP data collection for 3 minutes
2019/089:18:00:59.0000 OCEANscan (22 minutes)
* 2019/089:19:11:38.0000 TEP data collection for 3 minutes
* 2019/089:20:45:55.0000 TEP data collection for 3 minutes
^ 2019/089:22:00:38.0000 AMCS Cal for 2 minutes over open ocean
* 2019/089:22:20:12.0000 TEP data collection for 3 minutes
^ 2019/089:23:34:56.0000 AMCS Cal for 2 minutes over open ocean
^ 2019/090:01:41:15.0000 Laser image dump for 6 minutes over Antarctica during day
^ 2019/090:04:16:29.0000 AMCS Cal for 2 minutes over open ocean
2019/090:05:48:05.0000 OCEANscan (22 minutes)
^ 2019/090:07:25:04.0000 AMCS Cal for 2 minutes over open ocean
* 2019/090:10:54:31.0000 TEP data collection for 3 minutes
* 2019/090:12:28:49.0000 TEP data collection for 3 minutes
* 2019/090:14:03:06.0000 TEP data collection for 3 minutes
* 2019/090:15:37:24.0000 TEP data collection for 3 minutes
* 2019/090:17:11:41.0000 TEP data collection for 3 minutes
2019/090:17:35:20.0000 OCEANscan (22 minutes)
* 2019/090:18:45:58.0000 TEP data collection for 3 minutes
* 2019/090:20:20:16.0000 TEP data collection for 3 minutes
^ 2019/090:21:36:22.0000 AMCS Cal for 2 minutes over open ocean
* 2019/090:21:54:33.0000 TEP data collection for 3 minutes
^ 2019/090:23:09:16.0000 AMCS Cal for 2 minutes over open ocean
^ 2019/091:03:50:50.0000 AMCS Cal for 2 minutes over open ocean
2019/091:05:22:26.0000 OCEANscan (22 minutes)
^ 2019/091:06:59:25.0000 AMCS Cal for 2 minutes over open ocean
2019/091:08:23:14.0000 RTWscan (90 minutes)
* 2019/091:10:28:52.0000 TEP data collection for 3 minutes

* 2019/091:12:03:09.0000 TEP data collection for 3 minutes
* 2019/091:13:37:27.0000 TEP data collection for 3 minutes
* 2019/091:15:11:44.0000 TEP data collection for 3 minutes
* 2019/091:16:46:02.0000 TEP data collection for 3 minutes
  2019/091:17:09:41.0000 OCEANscan (22 minutes)
* 2019/091:18:20:19.0000 TEP data collection for 3 minutes
^ 2019/091:19:46:18.0000 Inclination maneuver 2 for 74 minutes
* 2019/091:21:28:54.0000 TEP data collection for 3 minutes
^ 2019/091:22:43:37.0000 AMCS Cal for 2 minutes over open ocean
^ 2019/092:03:30:52.0000 AMCS Cal for 2 minutes over open ocean
  2019/092:04:56:46.0000 OCEANscan (22 minutes)
^ 2019/092:06:33:46.0000 AMCS Cal for 2 minutes over open ocean
  2019/092:07:57:35.0000 RTWscan (90 minutes)
  2019/092:18:18:19.0000 OCEANscan (22 minutes)
* 2019/092:19:28:57.0000 TEP data collection for 3 minutes
* 2019/092:21:03:14.0000 TEP data collection for 3 minutes
^ 2019/092:22:17:58.0000 AMCS Cal for 2 minutes over open ocean
* 2019/092:22:36:35.0000 TEP data collection for 3 minutes
^ 2019/093:03:18:49.0000 AMCS Cal for 2 minutes over open ocean
^ 2019/093:04:33:49.0000 AMCS Cal for 2 minutes over open ocean
  2019/093:06:05:24.0000 OCEANscan (22 minutes)
  2019/093:07:31:55.0000 RTWscan (90 minutes)
^ 2019/093:09:20:00.0000 Stellar centroid image dump for 90 minutes (no stellar centroids)
  2019/093:17:52:40.0000 OCEANscan (22 minutes)
* 2019/093:20:37:35.0000 TEP data collection for 3 minutes
^ 2019/093:21:52:18.0000 AMCS Cal for 2 minutes over open ocean
* 2019/093:22:11:52.0000 TEP data collection for 3 minutes
^ 2019/093:23:26:02.0000 AMCS Cal for 2 minutes over open ocean